Solar energy generation

129. SHRI ABU ASIM AZMI: Will the Minister of NEW AND RENEWABLE ENERGY be pleased to state:

(a) the quantum of solar energy generated in the country as on date;

(b) whether Government propose to give priority to solar energy over hydro power and thermal power;

(c) if so, the details thereof;

(d) the funds allocated to each State during the last three years, to popularize solar energy; and

(e) the details of manufacturers/suppliers of solar energy system in each State as on date?

THE MINISTER OF STATE OF THE MINISTRY OF NEW AND RENEWABLE ENERGY (SHRI VILAS MUTTEMWAR): (a) to (c) India receives solar energy equivalent to over 5,000 trillion kWh per year. The daily average solar energy incident over India varies from 4-7 kWh per square metre depending upon the location. Solar energy can be harnessed through two routes, namely solar photovoltaic (PV) and solar thermal, by direct conversion to electricity and heat energy respectively.

The utilization of solar energy in the country is regularly increasing, however, the high initial cost of the solar energy systems is a barrier in its large-scale utilization. The estimated unit cost of electricity from grid connected solar energy plant is estimated to be around Rs. 12-15 per unit, which is very high compared to electricity generated from conventional sources including thermal power and other renewable energy sources such as wind, small hydro and biomass.

A total of 33 grid interactive solar photovoltaic power plants have been installed in the country with financial assistance from the Ministry. These plants, with aggregate capacity of 2.125 megawatt peak (MWp), are estimated to generate about 2.5 million units of electricity in a year.

In view of the high initial cost, at present solar energy systems are mainly being used for stand-alone applications, in lighting, telecommunication, small power requirements, battery charging, water heating and cooking etc. so far around 14 lakh solar photovoltaic systems aggregating to about 110 Megawatt peak solar photovoltaic module capacity have been installed in the country. In addition about 6 lakh solar cookers and about 20 lakh square metre collector area has been installed for solar water heating applications, which is equivalent to about 1400 Megawatt thermal capacity.

(d) The details of State-wise release of funds during the last three years for various solar energy programmes are given in Statement-I (*see* below).

(e) The State-wise details of manufacturers of solar photovoltaic cells/modules, solar cookers, flat plate solar thermal collector based water heating systems and suppliers of evacuated tube collector based water heating systems are given in the Statement-II.

Statement-I

State-wise release of funds for solar energy programmes

(Rs. in lakhs)

State and UTs	Financial year		
	2004-05	2005-06	2006-07
Andhra Pradesh	21.94	49.8	44.2
Arunachal Pradesh	0	34.81	280.6
Assam	20.22	50	0
Bihar	0	9.12	22.95
Chandigarh	0	0.08	0
Chhattisgarh	71.54	14.16	47.7
Delhi	6.4	17.5	8.5
Goa	0	0	13.25
Gujarat	37.2	36.97	280.59
Himachal Pradesh	88.3	1.77	505.62
Haryana	20.3	165.78	355.32
Jammu and Kashmir	173.34	3.2	210.33
Jharkhand	0	5.91	0
Karnataka	143.27	326.35	312.23
Kerala	0.08	74.54	0
Madhya Pradesh	27.38	3	129.01
Maharashtra	45.36	107.97	270.88
Manipur	0	24.98	15.95
Meghalaya	0.08	154.76	424.78
Mizoram	43.58	110.71	100.9
Nagaland	0	6.98	94.9
Orissa	2.8	2.26	76.48
Pondicherry	1.73	5.09	2
Punjab	4	11.8	62.9
Rajasthan	4.95	246.16	396.82
Sikkim	26	0	110.14
Tamil Nadu	4.15	107.23	253.27
Tripura	0	1.71	0
Uttar Pradesh	175.7	174.99	171.85
Uttarakhand	2.78	273.23	1246.33
West Bengal	41.17	325.81	341.78
IREDA/Banks/Others	776.6	3465.76	1706.03
TOTAL	1738.87	5812.43	7485.31

Statement-II

State-wise manufacturers of Solar Photovoltaic Cells/Modules, Solar Water Heaters and Solar Cookers

States/Financial year	Solar PV Modules	Solar Water Heaters (Flat plate)	Solar Water Heaters (Evacuated Tube)*	Solar Cookers
Andhra Pradesh	6	4	2	1
Chandigarh	—	2	—	—
Delhi	—	1	6	5
Gujarat	—	4	2	7
Haryana	—	—	1	—
Himachal Pradesh	—	1	—	—
Karnataka	5	26	5	4
Kerala	1	—	1	1
Madhya Pradesh	—	—	—	1
Maharashtra	—	16	7	4
Punjab	1	—	—	1
Rajasthan	1	—	—	1
Tamil Nadu	2	2	2	1
Uttar Pradesh	2	—	—	3
Uttarakhand	—	—	1	—
West Bengal	1	—	1	1
TOTAL	19	57	29	31

*Suppliers of evacuated tube collector based water heaters.

Solar energy under Remote Villages Electrification Programme

130. SHRI O.T. LEPCHA: Will the Minister of NEW AND RENEWABLE ENERGY be pleased to state:

(a) whether Government have formulated any scheme to provide solar energy under Remote Villages Electrification Programme during the last three years;

(b) if so, the details thereof; and

(c) the details of action taken or proposed to be taken by Government in this regard?